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Alaska SAR Facility RADARSAT Geophysical Processor System

Product Specification Version 1.31

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	Converting freezing-degree-da	y ranges from real*4	to complex*8
	Deleted entries for first-year ic	e fractional areas	
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	Added a ridge flag		
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1.0 Introduction

This document specifies the content and format of the products generated by the Radarsat Geophysical Processor System.

1.1 Notes on the Data

- All fractional areas referred to in the product descriptions are normalized to the initial area of that cell, so that fractional area values may be greater than one in some cases.
- For space considerations, all fractional areas are given as 2-byte integers that must be multipli by 0.001 to retrieve the proper value.
- Cell areas, and other areas calculated from the cell area, may be negative in certain situations.
- Data are defined as one of the following types:

Cnn : character string of byte length *nn*

I2 : 2-byte integerI4 : 4-byte integer

R4: 4-byte floating point R8: 8-byte floating point CX8: 8-byte complex number

1.2 Product File naming Convention

File Name: PnpppSYYDDDddd.TF

where

Pn: Platform and number ("R1", "E1", "E2")

ppp: Product ID (1-999)

S: Data stream ID (a-z, A-Z) YY: Start year of the product

DDD: Start julian day of the product

ddd: Duration (in days) that the product spans

T: Product type, according to the code described on the following table

F: File type ("P" for product, "M" for metadata)

Introduction 1

1.3 Summary (Frequency and Size)

The following table summarizes the production frequency and size of each of the products. The asterisked entries have variable length sizes and are explained in the following notes. These records contain histograms where the number of entries are related to the cumulative number of observations of a particular quantity. Therefore, as a season progresses, the sizes of the products increase. The noted size estimates assume the existence of 100,000 cells in the full histograms and 4000 cells in the 50km products. The yearly size estimates assume nine months of observation, since these are winter products only. It is also assumed that there will optimally be 8 observations per 24-day cycle.

Product Type	Code	Frequency	Size (MB)	Size(GB/yr)
Lagrangian Ice Motion	А	1/wk	11	0.4
Ice Age Histogram	В	1/wk	* (note 1)	4.1
Interpolated Ice Age Histogram (3-day)	С	1/wk	* (note 2)	4.9
Area/Open Water Fraction	D	1/wk	14.4	0.6
Ice Thickness Histogram	E	1/wk	* (note 3)	1.7
Backscatter Histogram	F	1/wk	20	0.8
Ice Age Histogram (50km grid)	G	1/wk	* (note 4)	0.02
Ice Thickness Histogram (50km grid)	Н	1/wk	* (note 5)	0.02
Backscatter Histogram (50km grid)	1	1/wk	0.4	0.02
Area/Open Water Fraction (50km grid)	J	1/wk	0.4	0.02
Eulerian Ice Motion (50km grid)	K	1/wk	0.2	0.01
Eulerian Ice Motion	L	variable	0.2	1.04
Melt Onset/Freeze Up	М	2/yr	9	0.02
Wind/Temp/Pressure Fields (50km grid)	N	1/day	0.2	0.07
Ice Deformation	0	1/wk	18.0	0.7
			Total	14.7/yr

(note 1): 15MB + 4MB times the number of temporal observations.

(note 2): 15MB + 3MB times the number of temporal observations.

(note 3): 17.6MB + 2MB times the number of temporal observations.

(note 4): 0.2MB + 0.01MB times the number of temporal observations.

(note 5): 0.2MB + 0.02MB times the number of temporal observations.

Introduction 2

2.0 Lagrangian Ice Motion Product

Description

This product contains the trajectories of all grid points within an initial datatake over a time interval between time T_{start} up through time T_{start} +n ΔT . The last observations are added at T_{start} +n ΔT = T_{end} . For example, the starting time, T_{start} , could be at fall freeze-up or at the spring-summer transition. Here, $1/\Delta T$ is the frequency of product generation and n is an integer greater or equal to 1. T_{end} is typically at the end of a season of ice tracking.

Frequency/Size Estimate

The production frequency is once per week. Each product file grows as more observations are added each week. Assuming that an average datatake contains 10,000 grid points, the initial product file is approximately 1.1 MB and increases by 1.1MB per week.

2.1 Lagrangian Ice Motion Product: Metadata Record Contents

Name/Description	Туре	Units	Min	Max	Miss	Values
PID RGPS Product identifier	C24	N/A	N/A	N/A	N/A	N/A
PROD_DESCRIPTION Description of this product	C40	N/A	N/A	N/A	N/A	N/A
N_IMAGES Number of images used in the creation of this product	I2	N/A	1	N/A	N/A	N/A
N_TRAJECTORIES Number of trajectories	14	N/A	1	N/A	N/A	N/A
PROD_TYPE Product type	C8	N/A	N/A	N/A	N/A	"winter" "summer"
CREATE_YEAR Product creation year	12	N/A	1995	N/A	N/A	N/A
CREATE_TIME Product creation time	R8	day	1.00	367.00	N/A	N/A
SEASON_START_YEAR Season start year	12	N/A	1995	N/A	N/A	N/A
SEASON_START_TIME Season start time	R8	day	1.00	367.00	N/A	N/A
SEASON_END_YEAR Season end year	12	N/A	1995	N/A	N/A	N/A
SEASON_END_TIME Season end time	R8	day	1.00	367.00	N/A	N/A
SW_VERSION Software version used to create this product	C12	N/A	N/A	N/A	N/A	N/A
N_W_LAT North West Latitude of initial datatake	R4	Deg	-90.00	90.00	N/A	N/A
N_W_LONG North West Longitude of initial datatake	R4	Deg	-180.00	180.00	N/A	N/A
N_E_LAT North East Latitude of initial datatake	R4	Deg	-90.0	90.00	N/A	N/A
N_E_LONG North East Longitude of initial datatake	R4	Deg	-180.00	180.00	N/A	N/A
S_W_LAT South West Latitude of initial datatake	R4	Deg	-90.0	90.00	N/A	N/A
S_W_LONG South West Longitude of initial datatake	R4	Deg	-180.00	180.00	N/A	N/A
S_E_LAT South East Latitude of initial datatake	R4	Deg	-90.0	90.00	N/A	N/A
S_E_LONG South East Longitude of initial datatake	R4	Deg	-180.00	180.00	N/A	N/A

2.2 Lagrangian Ice Motion Product: Image Description Data

The image description data contain one record per image used in the construction of the Lagrangian ice motion. The records are in row order. Each record has the following format.

Name/Description	Туре	Units	Min	Max	Miss	Values
IMAGE_ID ASF image identifier	C16	N/A	N/A	N/A	N/A	N/A

Name/Description	Туре	Units	Min	Max	Miss	Values
IMAGE_YEAR Image center year	12	N/A	1995	N/A	N/A	N/A
IMAGE_TIME Image center time	R8	day	1.00	367.00	N/A	N/A
MAP_X Image center x	R8	km	N/A	N/A	N/A	N/A
MAP_Y Image center y	R8	km	N/A	N/A	N/A	N/A

2.3 Lagrangian Ice Motion Product: Gridpoint/Trajectory Description Data

The gridpoint description data contain one record for each gridpoint and its trajectory. The records are in row order. Each record has the following format.

Name/Description	Туре	Units	Min	Max	Miss	Values
GPID	14	N/A	0	N/A	N/A	N/A
Grid point identifier		14/71		14//	14// (14/71
BIRTH_YEAR	12	N/A	1995	N/A	N/A	N/A
Birth year of grid point		1 47 7	1000	1,77	14// (14/71
BIRTH_TIME	R8	day	1.00	367.00	N/A	N/A
Birth time of grid point		u,		301.00		
DEATH_YEAR	12	N/A	1995	N/A	N/A	N/A
Death year of grid point						
DEATH_TIME	R8	day	1.00	367.00	N/A	N/A
Death year of grid point	1.0	uay	1.00	007.00	1477	13/71
N_OBS	14	N/A	1	N/A	N/A	N/A
Number of observations in trajectory		14,71		1471	1477	13/71
OBS_YEAR_1	12	N/A	1995	N/A	N/A	N/A
Year of first observation	12	14// (1000	14//	14//	14// (
OBS_TIME_1	R8	day	1.00	367.00	N/A	N/A
Time of first observation	110	day	1.00	007.00	14//	14// (
X_MAP_1	R8	km	N/A	N/A	N/A	N/A
X map location of first observation	110	Kill	14//	14//	14//	14// (
Y_MAP_1	R8	km	N/A	N/A	N/A	N/A
Y map location of first observation	110	Kill	14//	14//	14//	14//
Q_FLAG_1	12	N/A	N/A	N/A	N/A	N/A
Quality Flag of first observation	'-	14// (14// \	14//	14// (14//
					•	
•						-
•				-	•	-
OBS_YEAR_N	12	N/A	1995	N/A	N/A	N/A
Year of (N_OBS) observation	12	14/71	1000	14//	14// (14/71
OBS_TIME_N	R8	day	1.00	367.00	N/A	N/A
Time of (N_OBS) observation	1.0	day	1.00	307.00	14// (14// (
X_MAP_N	R8	km	N/A	N/A	N/A	N/A
X map location of (N_OBS) observation	110	KIII	1 11/7	1 1 1 / / / /	1 11/7	IN/A
Y_MAP_N	R8	km	N/A	N/A	N/A	N/A
Y map location of (N_OBS) observation	110	KIII	13/7	13/7	1 1 1 / / /	IN/A
Q_FLAG_N	12	N/A	N/A	N/A	N/A	N/A
Quality Flag of (N_OBS) observation	12	IN/#\	13/7	1 1 1 / / 1	1 1 1 / / 1	13/73

3.0 Ice Age Histogram Product

Description

This product contains the ice age histograms of all the grid cells covering the Arctic Ocean at time T_s.

Frequency/Size Estimate

The product generation frequency is once per week. Each product file contains the ice age histograms and ridging events of the approximately 500,000 grid cells covering the Arctic Ocean. This record is of dynamical size, depending on the number of ice age ranges and ridging events that are sampled.

3.1 Ice Age Histogram Product: Metadata Record Contents

Name/Description	Туре	Units	Min	Max	Miss	Values
PID RGPS Product identifier	C24	N/A	N/A	N/A	N/A	N/A
PROD DESCRIPTION						
Description of this product	C40	N/A	N/A	N/A	N/A	N/A
N_CELLS	14	N/A	N/A	N/A	N/A	N/A
Number of cells in the product	Ţ	IN//A	IN//A	IN//A	IN//A	IN/A
CREATE_YEAR	12	N/A	1995	N/A	N/A	N/A
Product creation year	· -			, .		,, .
CREATE_TIME	R8	day	1.00	367.00	N/A	N/A
Product creation time						
SEASON_START_YEAR	12	N/A	1995	N/A	N/A	N/A
Season start year						
SEASON_START_TIME	R8	day	1.00	367.00	N/A	N/A
Season start time		,				
SEASON_END_YEAR	12	N/A	1995	N/A	N/A	N/A
Season end year						
SEASON_END_TIME Season end time	R8	day	1.00	367.00	N/A	N/A
SW_VERSION Software version used to create this product	C12	N/A	N/A	N/A	N/A	N/A
N W LAT						
North West Latitude of initial datake	R4	Deg	-90.00	90.00	N/A	N/A
N W LONG						
North West Longitude of initial datake	R4	Deg	-180.00	180.00	N/A	N/A
N E LAT						
North East Latitude of initial datake	R4	Deg	-90.00	90.00	N/A	N/A
N E LONG						
North East Longitude of initial datake	R4	Deg	-180.00	180.00	N/A	N/A
S_W_LAT						
South West Latitude of initial datake	R4	Deg	-90.00	90.00	N/A	N/A
S W LONG		_				
South West Longitude of initial datake	R4	Deg	-180.00	180.00	N/A	N/A
S E LAT	5.4		00.00	00.00	N1/A	N1/A
South East Latitude of initial datake	R4	Deg	-90.00	90.00	N/A	N/A
S_E_LONG	D4	Don	400.00	400.00	NI/A	NI/A
South East Longitude of initial datake	R4	Deg	-180.00	180.00	N/A	N/A
			1		1	I.

3.2 Ice Age Histogram Product: MY-Keep Record

The my-keep record contains the number of smallest MY ice fraction values to keep in each cell record.

Name/Description	Туре	Units	Min	Max	Miss	Values
N_MYKEEP						
The number of smallest MY ice fraction values to keep for each cell	12	N/A	N/A	N/A	N/A	N/A

3.3 Ice Age Histogram Product: Histogram Data

The histogram data contain one record per cell observed. The data pertain to the last observation of the cell up to the time of the product. The records are in row order. Each record has the following format.

Name/Description	Туре	Units	Min	Max	Miss	Values
CELL_ID	14	N/A	0	N/A	N/A	N/A
Cell identifier	14	IN/A	U	IN/A	IN/A	IN/A
OBS_YEAR	12	N/A	1995	N/A	N/A	N/A
Year of observation	12	IN/A	1990	IN/A	IN/A	IN/A
OBS_TIME	R8	dov	1.00	367.00	N/A	N/A
Time of observation	I Ko	day	1.00	367.00	IN/A	IN/A
BIRTH_YEAR	12	N/A	1995	N/A	N/A	N/A
Birth Year of cell	12	IN/A	1995	IN/A	IN/A	IN/A
BIRTH_TIME	Do	40.7	4.00	207.00	NI/A	NI/A
Birth time of cell	R8	day	1.00	367.00	N/A	N/A
X_MAP	- D0		N1/A	N1/A	N1/A	N1/A
Map location of cell center - x	R8	km	N/A	N/A	N/A	N/A
Y MAP						
Map location of cell center - y	R8	km	N/A	N/A	N/A	N/A
C_TEMP						
Temperature at cell center	R4	deg C	-100.0	100.0	N/A	N/A
FDD						
Accumulated freezing degree days since	R4	deg C day	0	N/A	N/A	N/A
cell creation			· ·	,, .		
I AREA						
Initial cell area	R4	sq km	0	N/A	N/A	N/A
C AREA	_					
Current cell area	R4	sq km	0	N/A	N/A	N/A
N AGE						
Number of age categories up to and includ-	12	N/A	N/A	N/A	N/A	N/A
ing the oldest observation		14/7	14//	13/73	14,71	1 1,71
AR_1						
1st age range (youngest ice)	CX8	days	N/A	N/A	N/A	N/A
FAR_1						
Fractional area in 1st age range	12	N/A	0	N/A	N/A	N/A
FDD 1						
Accumulated freezing degree days of 1st	CX8	deg C day	0	N/A	N/A	N/A
age range	0,10		Ŭ	',',	',,,	',,,
•			•			
	:		•		•	
AR N	-		-	-	-	-
(N_AGE) age range	CX8	days	N/A	N/A	N/A	N/A

Name/Description	Туре	Units	Min	Max	Miss	Values
FAR_N	12	N/A	0	N/A	N/A	N/A
Fractional area in (N_AGE) age range	12	IN/A	U	IN/A	IN/A	IN/A
FDD_N						
Accumulated freezing degree days of	CX8	deg C day	0	N/A	N/A	N/A
(N_AGE) age range						
FAR_FYR	12	NI/A	0	NI/A	NI/A	N/A
Fractional area in ridged-FY category	12	N/A	U	N/A	N/A	IN/A
FAR_MY	10	N1/A		NI/A	N1/A	N1/A
Fractional area in radiometric MY category	l2	N/A	0	N/A	N/A	N/A
FAR MY1						
First element of the N_MYKEEP smallest	12	N/A	0	N/A	N/A	N/A
myfrac values						
FAR MYN						
Last element of the N_MYKEEP smallest	12	N/A	0	N/A	N/A	N/A
myfrac values						
N_RIDGE	10	21/2		.		21/2
Number of ridging event records	I2	N/A	0	N/A	N/A	N/A
RIDGE_AR_1	2)/2					
Age range of ridging event 1	CX8	days	0	N/A	N/A	N/A
RIDGE FAR 1						
Fractional area of ridging event 1	12	N/A	0	N/A	N/A	N/A
RIDGE FDD 1						
Accumulated freezing degree days of ridg-	CX8	deg C day	0	N/A	N/A	N/A
ing event 1	0,10	aog o day	· ·	14/7	14/7	13// (
RIDGE_FLAG_1						
0 = old ridge, 1 = new ridge	12	N/A	0	1	N/A	N/A
•	:	•	•	•		•
•	:		:	_	_	[
RIDGE_AR_N	<u> </u>	-	•	•	•	-
Age range of ridging event N_RIDGE	CX8	days	0	N/A	N/A	N/A
RIDGE_FAR_N	1					
Fractional area fo ridging event N_RIDGE	12	N/A	0	N/A	N/A	N/A
RIDGE_FDD_N	-					
Accumulated freezing degree days of ridg-	CX8	deg C day	0	N/A	N/A	N/A
ing event N_RIDGE	0.00	ueg c day	U	IN/A	IN/A	IN/A
RIDGE FLAG N						
	12	N/A	0	1	N/A	N/A
0 = old ridge, 1 = new ridge						

4.0 Interpolated Ice Age Histogram Product (3-day age categories)

Description

This product contains the ice age histograms of all the grid cells within an initial datatake at time T_s. Each ice age histogram has uniformly-sampled (integral multiples of 3 days) age categories which are constructed from interpolation of the non-uniformly spaced Lagrangian cell areas into 3-day cell area.

Frequency/Size Estimate

The product generation frequency is once per week. Each product file contains the ice age histograms of the grid cells within this product. This record is of dynamical size, depending on the number of interpolated ice age ranges that are sampled.

4.1 Interpolated Ice Age Histogram Product: Metadata Record Contents

Name/Description	Туре	Units	Min	Max	Miss	Values
PID	C24	N/A	N/A	N/A	N/A	N/A
RGPS Product identifier		-		-		
PROD_DESCRIPTION	C40	N/A	N/A	N/A	N/A	N/A
Description of this product						
N_CELLS Number of cells in the product	14	N/A	1	N/A	N/A	N/A
CREATE YEAR						
Product creation year	12	N/A	1995	N/A	N/A	N/A
CREATE TIME						
Product creation time	R8	day	1.00	367.00	N/A	N/A
SEASON_START_YEAR	_					
Season start year	12	N/A	1995	N/A	N/A	N/A
SEASON START TIME	D0		4.00	007.00	N1/A	N1/A
Season start time	R8	day	1.00	367.00	N/A	N/A
SEASON_END_YEAR	10	NI/A	4005	NI/A	NI/A	NI/A
Season end year	12	N/A	1995	N/A	N/A	N/A
SEASON_END_TIME	R8	day	1.00	367.00	N/A	N/A
Season end time	No	uay	1.00	307.00	IN/A	IN/A
SW_VERSION	C12	N/A	N/A	N/A	N/A	N/A
Software version used to create this product	012	14// (14// (14// (14// (14/73
N_W_LAT	R4	Deg	-90.00	90.00	N/A	N/A
North West Latitude of initial datake		Dog	00.00	00.00	14/71	14/71
N_W_LONG	R4	Deg	-180.00	180.00	N/A	N/A
North West Longitude of initial datake					,	. ,, .
N_E_LAT	R4	Deg	-90.00	90.00	N/A	N/A
North East Latitude of initial datake						
N_E_LONG	R4	Deg	-180.00	180.00	N/A	N/A
North East Longitude of initial datake						
S_W_LAT South West Latitude of initial datake	R4	Deg	-90.00	90.00	N/A	N/A
S W LONG						
South West Longitude of initial datake	R4	Deg	-180.00	180.00	N/A	N/A
S E LAT						
South East Latitude of initial datake	R4	Deg	-90.00	90.00	N/A	N/A
S E LONG	_	_				
South East Longitude of initial datake	R4	Deg	-180.00	180.00	N/A	N/A
John Last Longitude of finitial datane			I			

4.2 Interpolated Ice Age Histogram Product: Age Range and MY-Keep Record

The age range and my-keep record contains the age interval of each category in the age histogram and the number of smallest interpolated multiyear ice fraction values to keep in each cell record.

Name/Description	Туре	Units	Min	Max	Miss	Values
AGE_STEP The interval of each age category	R4	days	0	N/A	N/A	N/A
N_MYKEEP The number of smallest interpolated MY ice fraction values to keep for each cell	I2	N/A	N/A	N/A	N/A	N/A

4.3 Interpolated Ice Age Histogram Product: Histogram Data

The histogram data contain multiple records. Each record contains the ice age histogram for each cell. The records are in row order. Each record has the following format.

Name/Description	Туре	Units	Min	Max	Miss	Values
CELL_ID	14	N/A	0	N/A	N/A	N/A
Cell identifier	'-	IN/A		IN/A	IN/A	IN/A
OBS_YEAR	12	N/A	1995	N/A	N/A	N/A
Year of observation	'-	14//	1000	13// (14// (14//
OBS_TIME	R8	day	1.00	367.00	N/A	N/A
Time of observation	110	day	1.00	007.00	14/74	1077
BIRTH_YEAR	12	N/A	1995	N/A	N/A	N/A
Birth Year of cell	12	14/71	1000	14// (14/74	1077
BIRTH_TIME	R8	day	1.00	367.00	N/A	N/A
Birth time of cell	1.0	day	1.00	307.00	14// (14//
X_MAP	R8	km	N/A	N/A	N/A	N/A
Map location of cell center - x	10	KIII	IN//A	IN/A	IN/A	IN/A
Y_MAP	R8	km	N/A	N/A	N/A	N/A
Map location of cell center - y	1.0	KIII	13/73	IN/A	IN/A	IN/A
C_TEMP	R4	deg C	-100.0	100.0	N/A	N/A
Temperature at cell center	11.4	deg C	-100.0	100.0	IN/A	IN/A
FDD						
Accumulated freezing degree days since	R4	deg C day	0	N/A	N/A	N/A
cell creation						
I_AREA	R4	sq km	0	N/A	N/A	N/A
Initial cell area	11.4	39 1111		13// (14// (14//
C_AREA	R4	sq km	0	N/A	N/A	N/A
Current cell area	11.4	39 1111		13// (14// (14//
N_AGE						
Number of age categories up to and includ-	12	N/A	N/A	N/A	N/A	N/A
ing the oldest observation						
FAR_1	12	N/A	0	N/A	N/A	N/A
Fractional area in 1st age range	12	14/71	·	14/71	14/71	1077
FDD_1						
Accumulated freezing degree days of	CX8	deg C day	0	N/A	N/A	N/A
1st age range						
				•	•	-
				•		
•	•	-	•	•	•	-

Name/Description	Туре	Units	Min	Max	Miss	Values
FAR_N Fractional area in (N_AGE) age range	l2	N/A	0	N/A	N/A	N/A
FDD_N Accumulated freezing degree days of (N_AGE) age range	CX8	deg C day	0	N/A	N/A	N/A
FAR_FYR Fractional area in ridged-FY category	I2	N/A	0	N/A	N/A	N/A
FAR_MY Fractional area in MY category	12	N/A	0	N/A	N/A	N/A
FAR_MY1 First element of the N_MYKEEP smallest interpolated myfrac values	12	N/A	0	N/A	N/A	N/A
				•		
:						
FAR_MYN Last element of the N_MYKEEP smallest interpolated myfrac values	12	N/A	0	N/A	N/A	N/A

5.0 Area/Open Water Fraction Product

Description

This product contains the area and estimated open water fraction of all the grid cells within an initial datatake at time T_s . This product is produced only during the summer.

Frequency/Size Estimate

The product generation frequency is once per week. Each product file contains information of the area and open water fraction of the grid cells within this product, the size of each product being approximately 15MB.

5.1 Area/Open Water Fraction Product: Metadata Record Contents

Name/Description	Туре	Units	Min	Max	Miss	Values
PID RGPS Product identifier	C24	N/A	N/A	N/A	N/A	N/A
PROD DESCRIPTION	_					
Description of this product	C40	N/A	N/A	N/A	N/A	N/A
N_CELLS	14	N/A	N/A	N/A	N/A	N/A
Number of cells in the product	14	IN/A	IN/A	IN/A	IN/A	IN/A
CREATE_YEAR	12	N/A	1995	N/A	N/A	N/A
Product creation year		14/74	1000	14/71	1471	14/71
CREATE_TIME	R8	day	1.00	367.00	N/A	N/A
Product creation time						
SEASON_START_YEAR	12	N/A	1995	N/A	N/A	N/A
Season start year						
SEASON_START_TIME	R8	day	1.00	367.00	N/A	N/A
Season start time		,				
SEASON_END_YEAR	12	N/A	1995	N/A	N/A	N/A
Season end year						
SEASON_END_TIME	R8	day	1.00	367.00	N/A	N/A
Season end time						
SW_VERSION Software version used to create this product	C12	N/A	N/A	N/A	N/A	N/A
·						
N_W_LAT North West Latitude of initial datake	R4	Deg	-90.00	90.00	N/A	N/A
N_W_LONG North West Longitude of initial datake	R4	Deg	-180.00	180.00	N/A	N/A
N E LAT						
N_E_LAI North East Latitude of initial datake	R4	Deg	-90.00	90.00	N/A	N/A
N E LONG						
North East Longitude of initial datake	R4	Deg	-180.00	180.00	N/A	N/A
S_W_LAT						
South West Latitude of initial datake	R4	Deg	-90.00	90.00	N/A	N/A
S W LONG						
South West Longitude of initial datake	R4	Deg	-180.00	180.00	N/A	N/A
S E LAT			22.25			
South East Latitude of initial datake	R4	Deg	-90.00	90.00	N/A	N/A
S E LONG	D.4	D	400.00	400.00	NI/A	NI/A
South East Longitude of initial datake	R4	Deg	-180.00	180.00	N/A	N/A
-			1		1	1

5.2 Area/Open Water Fraction Product: Area/Open Water Fraction Data

The area/open water fraction data contain multiple records. Each record contains the area/open water fraction estimates for a cell. The records are in row order. Each record has the following format.

Name/Description	Туре	Units	Min	Max	Miss	Values
CELL_ID Cell identifier	14	N/A	0	N/A	N/A	N/A
OBS_YEAR Year of observation	12	N/A	1995	N/A	N/A	N/A
OBS_TIME Time of observation	R8	day	1.00	367.00	N/A	N/A
BIRTH_YEAR Birth Year of cell	12	N/A	1995	N/A	N/A	N/A
BIRTH_TIME Birth time of cell	R8	day	1.00	367.00	N/A	N/A
X_MAP Map location of cell center - x	R8	km	N/A	N/A	N/A	N/A
Y_MAP Map location of cell center - y	R8	km	N/A	N/A	N/A	N/A
CELL_TEMP Temperature at cell center	R4	deg C	-100.0	100.0	N/A	N/A
MDD Cumulative melting degree days	R4	deg C day	0	N/A	N/A	N/A
I_AREA Initial cell area	R4	sq km	0	N/A	N/A	N/A
C_AREA Current cell area	R4	sq km	0	N/A	N/A	N/A
OW_FRAC Open water fraction	12	N/A	0	N/A	N/A	N/A

6.0 Ice Thickness Histogram Product

Description

This product contains the ice thickness histograms of all the grid cells within an initial datatake at time T_s.

Frequency/Size Estimate

The product generation frequency is once per week. Each product file contains the ice thickness histograms and the recent ridging events of the grid cells within this product. This record is of dynamical size, depending on the number of thickness ranges that are sampled.

6.1 Ice thickness Histogram Product: Metadata Record Contents

Name/Description	Туре	Units	Min	Max	Miss	Values
PID	C24	N/A	N/A	N/A	N/A	N/A
RGPS Product identifier	024	IN/A	IN/A	IN/A	IN/A	IN/A
PROD_DESCRIPTION	C40	N/A	N/A	N/A	N/A	N/A
Description of this product		IN/A	IN/A	IN/A	IN/A	IN/A
N_CELLS	14	N/A	N/A	N/A	N/A	N/A
Number of cells in the product	'4	IN/A	IN/A	IN/A	IN/A	111/7
CREATE_YEAR	12	N/A	1995	N/A	N/A	N/A
Product creation year	12	IN/A	1995	IN/A	IN/A	111/7
CREATE_TIME	R8	day	1.00	367.00	N/A	N/A
Product creation time		uay	1.00	307.00	IN/A	111/7
SEASON_START_YEAR	12	N/A	1995	N/A	N/A	N/A
Season start year	12	IN/A	1995	IN/A	IN/A	111/7
SEASON_START_TIME	R8	day	1.00	367.00	N/A	N/A
Season start time		uay	1.00	307.00	IN/A	IN/A
SEASON_END_YEAR	12	N/A	1995	N/A	N/A	N/A
Season end year	12	IN/A	1995	IN/A	IN/A	111/7
SEASON_END_TIME	R8	day	1.00	367.00	N/A	N/A
Season end time		uay	1.00	307.00	IN/A	IN/A
SW_VERSION	C12	N/A	N/A	N/A	N/A	N/A
Software version used to create this product	012	14// (14//	14// (14// (14//
N_W_LAT	R4	Deg	-90.00	90.00	N/A	N/A
North West Latitude of initial datake	114	Dog	30.00	30.00	14// (14//
N_W_LONG	R4	Deg	-180.00	180.00	N/A	N/A
North West Longitude of initial datake	114	Dog	100.00	100.00	14// (14//
N_E_LAT	R4	Deg	-90.00	90.00	N/A	N/A
North East Latitude of initial datake	1	Dog	00.00	00.00	14/71	14/7
N_E_LONG	R4	Deg	-180.00	180.00	N/A	N/A
North East Longitude of initial datake	1	Dog	100.00	100.00	14/71	14/7
S_W_LAT	R4	Deg	-90.00	90.00	N/A	N/A
South West Latitude of initial datake	1	Dog	00.00	00.00	14/71	14/7
S_W_LONG	R4	Deg	-180.00	180.00	N/A	N/A
South West Longitude of initial datake	114	Dog	100.00	100.00	14// (14//
S_E_LAT	R4	Deg	-90.00	90.00	N/A	N/A
South East Latitude of initial datake			30.00	30.00	13// (14// (
S_E_LONG	R4	Deg	-180.00	180.00	N/A	N/A
South East Longitude of initial datake	'\-	Dog	100.00	100.00	14// (13//1

6.2 Ice Thickness Histogram Product: Interpolated Thickness Range Record

The interpolated thickness range record describes the thickness interval of each thickness category.

Name/Description	Туре	Units	Min	Max	Miss	Values
THICK_STEP The interval of each thickness category	R4	cm	0	N/A	N/A	N/A

6.3 Ice Thickness Histogram Product: Histogram Data

The histogram data contain multiple records. Each record contains the ice thickness histogram for a grid cell and its ridging events. The records are in row order. Each record has the following format.

Name/Description	Туре	Units	Min	Max	Miss	Values
CELL_ID	14	N/A	0	N/A	N/A	N/A
Cell identifier	14	IN/A	U	IN/A	IN/A	IN/A
OBS_YEAR	12	N/A	1995	N/A	N/A	N/A
Year of observation	12	IN/A	1990	IN/A	IN/A	IN/A
OBS_TIME	Do	de.	4.00	207.00	N/A	N/A
Time of observation	R8	day	1.00	367.00	IN/A	IN/A
BIRTH_YEAR	10	N1/A	4005	NI/A	NI/A	NI/A
Birth Year of cell	l2	N/A	1995	N/A	N/A	N/A
BIRTH_TIME	D0		4.00	007.00	N1/A	N1/A
Birth time of cell	R8	day	1.00	367.00	N/A	N/A
X_MAP						
Map location of cell center - x	R8	km	N/A	N/A	N/A	N/A
Y MAP	_					
Map location of cell center - y	R8	km	N/A	N/A	N/A	N/A
C TEMP						
Temperature at cell center	R4	deg C	-100.0	100.0	N/A	N/A
FDD						
Accumulated freezing degree days	R4	deg C day	0	N/A	N/A	N/A
I AREA						
I_ANEA Initial cell area	R4	sq km	0	N/A	N/A	N/A
C AREA						
Current cell area	R4	sq km	0	N/A	N/A	N/A
N THICK						
Number of thickness categories up to and	12	N/A	N/A	N/A	N/A	N/A
including the thickest observation	12	IN/A	IN/A	IN/A	IN/A	IN/A
FAR_1						
	12	N/A	0	N/A	N/A	N/A
Fractional area in 1st thickness range						
•		-	•		-	-
•			•			•
FAD N	•	•	•	•	•	•
FAR_N	10	N1/A	0	NI/A	N1/A	N1/A
Fractional area in the (N_THICK) thickness	l2	N/A	0	N/A	N/A	N/A
range						
FAR_FYR	12	N/A	0	N/A	N/A	N/A
Fractional area in ridged-FY category						
FAR_MY	12	N/A	0	N/A	N/A	N/A
Fractional area in MY category			-			
N_RIDGE	12	N/A	0	N/A	N/A	N/A
Number of ridging event records		1 1// 1		1 4/7 1	1 4/7 1	1 4// 1
RIDGE_TR_1	CX8	cm	0	N/A	N/A	N/A
Thickness range of ridging event 1				13//1	13//	14// \

Name/Description	Туре	Units	Min	Max	Miss	Values
RIDGE_FAR_1 Fractional area ridged in ridging event 1	12	N/A	0	N/A	N/A	N/A
				•	•	-
				•	-	
•	•	•	-	•	-	•
RIDGE_TR_N Thickness range of ridging event N_RIDGE	CX8	cm	0	N/A	N/A	N/A
RIDGE_FAR_N Fractional area ridged in ridging event N_RIDGE	12	N/A	0	N/A	N/A	N/A

7.0 Backscatter Histogram Product

Description

This product contains the backscatter histograms of all the grid cells within an initial datatake at time T_s.

Frequency/Size Estimate

The product generation frequency is once per week. Each product file contains the backscatter histograms of the grid cells within this product. The size of a product file is approximately 31MB.

7.1 Backscatter Histogram Product: Metadata Record Contents

Name/Description	Туре	Units	Min	Max	Miss	Values
PID	C24	N/A	N/A	N/A	N/A	N/A
RGPS Product identifier	021	14/71	14//	14/71	14// (14/71
PROD_DESCRIPTION	C40	N/A	N/A	N/A	N/A	N/A
Description of this product		14,71	1071	14/71	14// (14/71
N_CELLS	14	N/A	N/A	N/A	N/A	N/A
Number of cells in the product			1777	14//	14// (14/71
SEASON_START_YEAR	12	N/A	1995	N/A	N/A	N/A
Season start year	Į.	14,71	1000	14/71	14// (14/71
SEASON_START_TIME	R8	day	1.00	367.00	N/A	N/A
Season start time	110	day	1.00	007.00	14// (14/7
SEASON_END_YEAR	12	N/A	1995	N/A	N/A	N/A
Season end year	12	14// (1555	13// (14// (13//
SEASON_END_TIME	R8	day	1.00	367.00	N/A	N/A
Season end time	110	uay	1.00	307.00	IN/A	IN/A
CREATE_YEAR	12	N/A	1995	N/A	N/A	N/A
Product creation year	12	IN/A	1999	IN/A	IN/A	IN/A
CREATE_TIME	R8	day	1.00	367.00	N/A	N/A
Product creation time	110	uay	1.00	307.00	IN/A	IN/A
SW_VERSION	C12	N/A	N/A	N/A	N/A	N/A
Software version used to create this product	012	IN/A	IN/A	IN/A	IN/A	IN/A
N_W_LAT	R4	Deg	-90.00	90.00	N/A	N/A
North West Latitude of initial datake	N 4	Deg	-90.00	90.00	IN/A	IN/A
N_W_LONG	R4	Dog	-180.00	180.00	N/A	N/A
North West Longitude of initial datake	N 4	Deg	-100.00	100.00	IN/A	IN/A
N_E_LAT	R4	Deg	-90.00	90.00	N/A	N/A
North East Latitude of initial datake	N 4	Deg	-90.00	90.00	IN/A	IN/A
N_E_LONG	R4	Dog	-180.00	180.00	N/A	N/A
North East Longitude of initial datake	N4	Deg	-100.00	100.00	IN/A	IN/A
S_W_LAT	R4	Deg	-90.00	90.00	N/A	N/A
South West Latitude of initial datake	K4	Deg	-90.00	90.00	IN/A	IN/A
S_W_LONG	R4	Doa	-180.00	180.00	N/A	N/A
South West Longitude of initial datake	K4	Deg	-180.00	160.00	IN/A	IN/A
S_E_LAT	D.4	Dog	00.00	00.00	N/A	N/A
South East Latitude of initial datake	R4	Deg	-90.00	90.00	IN/A	IN/A
S_E_LONG	D.4	Dog	100.00	100.00	NI/A	NI/A
South East Longitude of initial datake	R4	Deg	-180.00	180.00	N/A	N/A

7.2 Backscatter Histogram Product: Backscatter Range Record

The backscatter range record describes the backscatter range for each category in the backscatter histogram.

Name/Description	Туре	Units	Min	Max	Miss	Values
BSR_1	CX8	dB	N/A	N/A	N/A	N/A
1st backscatter range	O/10	ub	14/73	14// (14// (14// (
BSR_2	CX8	dB	N/A	N/A	N/A	N/A
2nd backscatter range			, .	,, .	,	,,, .
BSR_3	CX8	dB	N/A	N/A	N/A	N/A
3rd backscatter range						
BSR_4	CX8	dB	N/A	N/A	N/A	N/A
4th backscatter range						
BSR_5 5th backscatter range	CX8	dB	N/A	N/A	N/A	N/A
BSR 6						
6th backscatter range	CX8	dB	N/A	N/A	N/A	N/A
BSR_7						
7th backscatter range	CX8	dB	N/A	N/A	N/A	N/A
BSR_8						
8th backscatter range	CX8	dB	N/A	N/A	N/A	N/A
BSR_9						
9th backscatter range	CX8	dB	N/A	N/A	N/A	N/A
BSR_10						
10th backscatter range	CX8	dB	N/A	N/A	N/A	N/A
BSR_11						
11th backscatter range	CX8	dB	N/A	N/A	N/A	N/A
BSR 12						
12th backscatter range	CX8	dB	N/A	N/A	N/A	N/A
BSR 13						
13th backscatter range	CX8	dB	N/A	N/A	N/A	N/A
BSR_14	0)/0	I.D.	N1/A	N./A	A1/A	N 1/A
14th backscatter range	CX8	dB	N/A	N/A	N/A	N/A
BSR_15	0.70	-ID	NI/A	NI/A	N1/A	N1/A
15th backscatter range	CX8	dB	N/A	N/A	N/A	N/A
BSR_16	0.70	-ID	NI/A	NI/A	N1/A	N1/A
16th backscatter range	CX8	dB	N/A	N/A	N/A	N/A
BSR_17	CVO	٩D	NI/A	NI/A	NI/A	NI/A
17th backscatter range	CX8	dB	N/A	N/A	N/A	N/A
BSR_18	CX8	dB	N/A	N/A	N/A	N/A
18th backscatter range	CAO	ub	IN/A	IN/A	IN/A	IN/A
BSR_19	CX8	dB	N/A	N/A	N/A	N/A
19th backscatter range	CXO	u u u	IN/A	111/73	IN/A	IN/A
BSR_20	CX8	dB	N/A	N/A	N/A	N/A
20th backscatter range	OAO	GD.	14/73	14// (14// (14// (
BSR_21	CX8	dB	N/A	N/A	N/A	N/A
21st backscatter range	07.0	45	1477	14,71	1 4/7 (14/71
BSR_22	CX8	dB	N/A	N/A	N/A	N/A
22nd backscatter range			,. ,			
BSR_23	CX8	dB	N/A	N/A	N/A	N/A
23rd backscatter range						
BSR_24	CX8	dB	N/A	N/A	N/A	N/A
24th backscatter range	-					

Name/Description	Туре	Units	Min	Max	Miss	Values
BSR_25 25th backscatter range	CX8	dB	N/A	N/A	N/A	N/A

7.3 Backscatter Histogram Product: Backscatter Histogram Data

The histogram data contain multiple records. Each record contains the backscatter histogram for a grid cell. The records are in row order. Each record has the following format.

Name/Description	Туре	Units	Min	Max	MISS	Values
CELL_ID	14	N/A	0	N/A	N/A	N/A
Cell identifier	'-	IN/A		IN/A	IN/A	IN/A
OBS_YEAR	12	N/A	1995	N/A	N/A	N/A
Year of observation	'2	111/7	1990	IN/A	IN/A	IN/A
OBS_TIME	R8	day	1.00	367.00	N/A	N/A
Time of observation	100	uay	1.00	307.00	IN/A	IN/A
BIRTH_YEAR	12	N/A	1995	N/A	N/A	N/A
Birth Year of cell	12	IN/A	1995	IN/A	IN/A	IN/A
BIRTH_TIME	R8	dov	1.00	367.00	N/A	N/A
Birth time of cell	I NO	day	1.00	307.00	IN/A	IN/A
X_MAP	Do	lem	NI/A	NI/A	NI/A	NI/A
Map location of cell center - x	R8	km	N/A	N/A	N/A	N/A
Y_MAP	DO.	lone	NI/A	NI/A	NI/A	NI/A
Map location of cell center - y	R8	km	N/A	N/A	N/A	N/A
CELL_TEMP	D4	-1	400.0	400.0	NI/A	N1/A
Temperature at cell center	R4	deg C	-100.0	100.0	N/A	N/A
I AREA	5.4			N1/A	A1/A	21/2
Initial cell area	R4	sq km	0	N/A	N/A	N/A
C AREA	5.4			N1/A	A1/A	21/2
Current cell area	R4	sq km	0	N/A	N/A	N/A
MYFRAC			_			21/4
Multiyear ice fraction	I2	N/A	0	N/A	N/A	N/A
OWFRAC			_			21/4
Open water fraction	I2	N/A	0	N/A	N/A	N/A
FBSR_1	1					
Fractional area in 1st backscatter range	I2	N/A	0.0	1000	N/A	N/A
FBSR 2						
Fractional area in 2nd backscatter range	I2	N/A	0.0	1000	N/A	N/A
FBSR_3						
Fractional area in 3rd backscatter range	I2	N/A	0.0	1000	N/A	N/A
FBSR_4						
Fractional area in 4th backscatter range	I2	N/A	0.0	1000	N/A	N/A
FBSR_5						
Fractional area in 5th backscatter range	12	N/A	0.0	1000	N/A	N/A
FBSR_6						
Fractional area in 6th backscatter range	12	N/A	0.0	1000	N/A	N/A
FBSR_7						
Fractional area in 7th backscatter range	12	N/A	0.0	1000	N/A	N/A
FBSR 8						
Fractional area in 8th backscatter range	12	N/A	0.0	1000	N/A	N/A
FBSR_9 Fractional area in 9th backscatter range	12	N/A	0.0	1000	N/A	N/A
riactional area in stil backscatter range						1

Name/Description	Туре	Units	Min	Max	MISS	Values
FBSR_10 Fractional area in 10th backscatter range	I2	N/A	0.0	1000	N/A	N/A
FBSR_11 Fractional area in 11th backscatter range	12	N/A	0.0	1000	N/A	N/A
FBSR_12 Fractional area in 12th backscatterrange	12	N/A	0.0	1000	N/A	N/A
FBSR_13 Fractional area in 13th backscatter range	I2	N/A	0.0	1000	N/A	N/A
FBSR_14 Fractional area in 14th backscatter range	I2	N/A	0.0	1000	N/A	N/A
FBSR_15 Fractional area in 15th backscatter range	I2	N/A	0.0	1000	N/A	N/A
FBSR_16 Fractional area in 16th backscatter range	I2	N/A	0.0	1000	N/A	N/A
FBSR_17 Fractional area in 17th backscatter range	I2	N/A	0.0	1000	N/A	N/A
FBSR_18 Fractional area in 18th backscatter range	I2	N/A	0.0	1000	N/A	N/A
FBSR_19 Fractional area in 19th backscatter range	I2	N/A	0.0	1000	N/A	N/A
FBSR_20 Fractional area in 20th backscatter range	I2	N/A	0.0	1000	N/A	N/A
FBSR_21 Fractional area in 21st backscatter range	I2	N/A	0.0	1000	N/A	N/A
FBSR_22 Fractional area in 22nd backscatter range	I2	N/A	0.0	1000	N/A	N/A
FBSR_23 Fractional area in 23rd backscatter range	I2	N/A	0.0	1000	N/A	N/A
FBSR_24 Fractional area in 24th backscatter range	12	N/A	0.0	1000	N/A	N/A
FBSR_25 Fractional area in 25th backscatter range	12	N/A	0.0	1000	N/A	N/A
INC_ANG Incidence angle	R4	deg	0.0	90.0	N/A	N/A

8.0 Gridded Ice Age Histogram Product - (50km grid)

Description

This product contains the ice age histograms of $50 \text{km} \times 50 \text{km}$ Earth-fixed grid cells covering the Arctic Ocean at time T_s .

Frequency/Size Estimate

The product generation frequency is once per week. Each product file contains the ice age histograms of the approximately 4000 50km x 50km grid cells covering the Arctic Ocean. This record is of dynamical size, depending on the number of interpolated ice age ranges that are sampled.

8.1 Gridded Ice Age Histogram Product: Metadata Record Contents

Name/Description	Туре	Units	Min	Max	Miss	Values
PID RGPS Product identifier	C24	N/A	N/A	N/A	N/A	N/A
PROD_DESCRIPTION Description of this product	C40	N/A	N/A	N/A	N/A	N/A
N_CELLS Number of cells in the product	14	N/A	N/A	N/A	N/A	N/A
CELL_SIZE Size of cells in the product	R4	km	N/A	N/A	N/A	N/A
CREATE_YEAR Product creation year	12	N/A	1995	N/A	N/A	N/A
CREATE_TIME Product creation time	R8	day	1.00	367.00	N/A	N/A
PROD_START_YEAR Product start year	12	N/A	1995	N/A	N/A	N/A
PROD_START_TIME Product start time	R8	day	1.00	367.00	N/A	N/A
PROD_END_YEAR Product end year	12	N/A	1995	N/A	N/A	N/A
PROD_END_TIME Product end time	R8	day	1.00	367.00	N/A	N/A
SW_VERSION Software version used to create this product	C12	N/A	N/A	N/A	N/A	N/A

8.2 Gridded Ice Age Histogram Product: Interpolated Age Range Record

The interpolated age range record contains the age interval of each category in the age histogram.

Name/Description	Type	Units	Min	Max	Miss	Values
AGE_STEP The interval of each age category	R4	days	0	N/A	N/A	N/A

8.3 Gridded Ice Age Histogram Product: Histogram Data

The histogram data contain multiple records. Each record contains the ice age histogram for a grid cell. The records are in row order. Each record has the following format.

Name/Description	Туре	Units	Min	Max	Miss	Values
N_OBS	12	N/A	1	N/A	N/A	N/A
Number of observations in grid cell	12	IN/A	'	IN//A	IN//A	IN/A
OBS_YEAR_0	12	N/A	1995	N/A	N/A	N/A
Earliest year of observation in grid cell	12	13// (1555	14/73	14// (14// (
OBS_YEAR_1	12	N/A	1995	N/A	N/A	N/A
Latest year of observation in grid cell	12	13// (1555	14/73	14// (14// (
OBS_TIME_0	R8	day	1.00	367.00	N/A	N/A
Earliest time of observation in grid cell	1.0	day	1.00	007.00	14/71	1 4/7 (
OBS_TIME_1	R8	day	1.00	367.00	N/A	N/A
Latest time of observation in grid cell	1.0	day	1.00	007.00		1 4/7 (
BIRTH_YEAR_0	12	N/A	1995	N/A	N/A	N/A
Earliest birth year in grid cell		, .		. 47.		,.
BIRTH_YEAR_1	12	N/A	1995	N/A	N/A	N/A
Latest birth year in grid cell		, .		. 47.		,.
BIRTH_TIME_0	R8	day	1.00	367.00	N/A	N/A
Earliest birth time in grid cell		,				,
BIRTH_TIME_1	R8	day	1.00	367.00	N/A	N/A
Latest birth time in grid cell						,
X_MAP_CENTER	R4	km	N/A	N/A	N/A	N/A
Map location of cell center - x						
Y_MAP_CENTER	R4	km	N/A	N/A	N/A	N/A
Map location of cell center - y			,			,
C_TEMP	R4	deg C	-100.0	100.0	N/A	N/A
Temperature at cell center		409 0				,.
I_AREA	R4	sq km	0	N/A	N/A	N/A
Sum of initial cell areas in grid cell		• • • • • • • • • • • • • • • • • • • •				,
C_AREA	R4	sq km	0	N/A	N/A	N/A
Sum of current cell areas in grid cell		• • • • • • • • • • • • • • • • • • • •				,
N_AGE					N1/A	
Number of age categories up to and includ-	12	N/A	N/A	N/A	N/A	N/A
ing the oldest observation						
FAR_1	12	N/A	0	N/A	N/A	N/A
Fractional area in 1st age range						
•	-	•		-	•	
•	•	•		-	•	
FAR_N	•	•	•	•	•	•
Fractional area in (N_AGE) age range	12	N/A	0	N/A	N/A	N/A
FAR_FYR	-					
FAR_FYR Fractional area in ridged-FY category	12	N/A	0	N/A	N/A	N/A
FAR MY	-					
Fractional area in radiometric MY category	12	N/A	0	N/A	N/A	N/A

9.0 Gridded Ice Thickness Histogram Product (50km grid)

Description

This product contains the ice thickness histograms of $50 \text{km} \times 50 \text{km}$ Earth-fixed grid cells covering the Arctic Ocean at time T_s .

Frequency/Size Estimate

The product generation is frequency is once per week. Each product file contains the ice thickness histograms and ridging events of the approximately 4000 50km x 50km grid cells covering the Arctic Ocean. This record is of dynamical size, depending on the number of thickness ranges that are sampled.

9.1 Gridded Ice Thickness Histogram Product: Metadata Record Contents

Name/Description	Туре	Units	Min	Max	Miss	Values
PID RGPS Product identifier	C24	N/A	N/A	N/A	N/A	N/A
PROD_DESCRIPTION Description of this product	C40	N/A	N/A	N/A	N/A	N/A
N_CELLS Number of cells in the product	14	N/A	N/A	N/A	N/A	N/A
CELL_SIZE Size of cells in the product	R4	km	N/A	N/A	N/A	N/A
CREATE_YEAR Product creation year	12	N/A	1995	N/A	N/A	N/A
CREATE_TIME Product creation time	R8	day	1.00	367.00	N/A	N/A
PROD_START_YEAR Product start year	12	N/A	1995	N/A	N/A	N/A
PROD_START_TIME Product start time	R8	day	1.00	367.00	N/A	N/A
PROD_END_YEAR Product end year	12	N/A	1995	N/A	N/A	N/A
PROD_END_TIME Product end time	R8	day	1.00	367.00	N/A	N/A
SW_VERSION Software version used to create this product	C12	N/A	N/A	N/A	N/A	N/A

9.2 Gridded Ice Thickness Histogram Product: Interpolated Thickness Range Record

The interpolated thickness range record describes the thickness interval of each thickness category.

Name/Description	Туре	Units	Min	Max	Miss	Values
THICK_STEP The interval of each ice thickness category	R4	cm	0	N/A	N/A	N/A
THICK_R_STEP The interval of each ridge thickness category	R4	cm	0	N/A	N/A	N/A

9.3 Gridded Ice Thickness Histogram Product: Histogram Data

The histogram data contain multiple records. Each record contains the ice thickness histogram for a grid cell. The records are in row order. Each record has the following format.

Name/Description	Туре	Units	Min	Max	Miss	Values
N_OBS	10	NI/A	4	NI/A	NI/A	NI/A
Number of observations in grid cell	l2	N/A	1	N/A	N/A	N/A
OBS_YEAR_0	10	NI/A	4005	NI/A	NI/A	NI/A
Earliest year of observation in grid cell	I2	N/A	1995	N/A	N/A	N/A
OBS_YEAR_1	12	N/A	1995	N/A	N/A	N/A
Latest year of observation in grid cell	12	IN/A	1995	IN/A	IN/A	IN/A
OBS_TIME_0	R8	dov	1.00	367.00	N/A	N/A
Earliest time of observation in grid cell	Ko Ko	day	1.00	367.00	IN/A	IN/A
OBS_TIME_1	R8	dov	1.00	367.00	N/A	N/A
Latest time of observation in grid cell	I Ko	day	1.00	307.00	IN/A	IN/A
BIRTH_YEAR_0	12	NI/A	1005	NI/A	NI/A	NI/A
Earliest birth year in grid cell	I2	N/A	1995	N/A	N/A	N/A
BIRTH_YEAR_1	10	NI/A	4005	NI/A	NI/A	NI/A
Latest birth year in grid cell	12	N/A	1995	N/A	N/A	N/A
BIRTH_TIME_0	DO	da.	4.00	207.00	NI/A	NI/A
Earliest birth time in grid cell	R8	day	1.00	367.00	N/A	N/A
BIRTH_TIME_1	D0	-1	4.00	007.00	NI/A	NI/A
Latest birth time in grid cell	R8	day	1.00	367.00	N/A	N/A
X_MAP_CENTER	5.4		N1/A	N1/A	N1/A	N1/0
Map location of cell center - x	R4	km	N/A	N/A	N/A	N/A
Y_MAP_CENTER	5.4		N1/A	N1/A	N1/A	N1/0
Map location of cell center - y	R4	km	N/A	N/A	N/A	N/A
C_TEMP	5.4		400.0	400.0	A1/A	21/2
Temperature at cell center	R4	deg C	-100.0	100.0	N/A	N/A
I AREA			_			
Sum of initial cell areas in grid cell	R4	sq km	0	N/A	N/A	N/A
C_AREA	5.4		_	N1/A	A1/A	21/2
Sum of current cell areas in grid cell	R4	sq km	0	N/A	N/A	N/A
N_THICK						
Number of ice thickness categories up to	12	N/A	N/A	N/A	N/A	N/A
and including the thickest observation						
FAR_1	10	NI/A	0	NI/A	NI/A	NI/A
Fractional area in 1st ice thickness range	12	N/A	0	N/A	N/A	N/A
						-
FAR_N						
Fractional area in the (N_THICK) ice thick-	12	N/A	0	N/A	N/A	N/A
ness range						
FAR_FYR	12	N/A	0	N/A	N/A	N/A
Fractional area in ridged-FY category	12	IN/A		IN/A	IN/A	IN/A
FAR_MY	12	N/A	0	N/A	N/A	N/A
Fractional area in radiometric MY category	12	13/74		IN/ <i>F</i> A	1 1 1 / / 1	1 1 1 / / 1
N_RTHICK						
Number of ridge thickness categories up to	12	N/A	N/A	N/A	N/A	N/A
and including the thickest observation						
FAR_R_1	12	N/A	0	N/A	N/A	N/A
Fractional area in 1st ridge thickness range	'-	1 1 1/ /		14/7	1 1 1/7	13//

Name/Description	Туре	Units	Min	Max	Miss	Values
		•		•		-
•				•		-
		-		-		-
FAR_R_N Fractional area in the (N_THICK) ridge thickness range	12	N/A	0	N/A	N/A	N/A

10.0 Gridded Backscatter Histogram Product (50km grid)

Description

This product contains the ice age histograms of $50 \text{km} \times 50 \text{km}$ Earth-fixed grid cells covering the Arctic Ocean at time T_s .

Frequency/Size Estimate

The product generation frequency is once per week. Each product file contains the backscatter histograms of the approximately 4000 50km x 50km grid cells covering the Arctic Ocean. Each product file is approximately 0.2MB in size.

10.1 Gridded Backscatter Histogram Product : Metadata Record Contents

Name/Description	Туре	Units	Min	Max	Miss	Values
PID RGPS Product identifier	C24	N/A	N/A	N/A	N/A	N/A
PROD_DESCRIPTION Description of this product	C40	N/A	N/A	N/A	N/A	N/A
N_CELLS Number of cells in the product	14	N/A	N/A	N/A	N/A	N/A
CELL_SIZE Size of cells in the product	R4	km	N/A	N/A	N/A	N/A
CREATE_YEAR Product creation year	12	N/A	1995	N/A	N/A	N/A
CREATE_TIME Product creation time	R8	day	1.00	367.00	N/A	N/A
PROD_START_YEAR Product start year	12	N/A	1995	N/A	N/A	N/A
PROD_START_TIME Product start time	R8	day	1.00	367.00	N/A	N/A
PROD_END_YEAR Product end year	12	N/A	1995	N/A	N/A	N/A
PROD_END_TIME Product end time	R8	day	1.00	367.00	N/A	N/A
SW_VERSION Software version used to create this product	C12	N/A	N/A	N/A	N/A	N/A

10.2 Gridded Backscatter Histogram Product : Backscatter Range Record

The backscatter range record describes the backscatter range for each category in the backscatter histogram

Name/Description	Туре	Units	Min	Max	Miss	Values
BSR_1 1st backscatter range	CX8	dB	N/A	N/A	N/A	N/A
BSR_2 2nd backscatter range	CX8	dB	N/A	N/A	N/A	N/A
BSR_3 3rd backscatter range	CX8	dB	N/A	N/A	N/A	N/A
BSR_4 4th backscatter range	CX8	dB	N/A	N/A	N/A	N/A

Name/Description	Туре	Units	Min	Max	Miss	Values
BSR_5	CX8	dB	N/A	N/A	N/A	N/A
5th backscatter range	0/10	GD	14// (14// (14// (14// \
BSR_6 6th backscatter range	CX8	dB	N/A	N/A	N/A	N/A
BSR_7 7th backscatter range	CX8	dB	N/A	N/A	N/A	N/A
BSR_8 8th backscatter range	CX8	dB	N/A	N/A	N/A	N/A
BSR_9 9th backscatter range	CX8	dB	N/A	N/A	N/A	N/A
BSR_10 10th backscatter range	CX8	dB	N/A	N/A	N/A	N/A
BSR_11 11th backscatter range	CX8	dB	N/A	N/A	N/A	N/A
BSR_12 12th backscatter range	CX8	dB	N/A	N/A	N/A	N/A
BSR_13 13th backscatter range	CX8	dB	N/A	N/A	N/A	N/A
BSR_14 14th backscatter range	CX8	dB	N/A	N/A	N/A	N/A
BSR_15 15th backscatter range	CX8	dB	N/A	N/A	N/A	N/A
BSR_16 16th backscatter range	CX8	dB	N/A	N/A	N/A	N/A
BSR_17 17th backscatter range	CX8	dB	N/A	N/A	N/A	N/A
BSR_18 18th backscatter range	CX8	dB	N/A	N/A	N/A	N/A
BSR_19 19th backscatter range	CX8	dB	N/A	N/A	N/A	N/A
BSR_20 20th backscatter range	CX8	dB	N/A	N/A	N/A	N/A
BSR_21 21st backscatter range	CX8	dB	N/A	N/A	N/A	N/A
BSR_22 22nd backscatter range	CX8	dB	N/A	N/A	N/A	N/A
BSR_23 23rd backscatter range	CX8	dB	N/A	N/A	N/A	N/A
BSR_24 24th backscatter range	CX8	dB	N/A	N/A	N/A	N/A
BSR_25 25th backscatter range	CX8	dB	N/A	N/A	N/A	N/A

10.3 Gridded Backscatter Histogram Product : Backscatter Histogram Data

The histogram data contain multiple records. Each record contains the backscatter histogram for a grid

cell. The records are in row order. Each record has the following format.

Name/Description	Туре	Units	Min	Max	Miss	Values
N_OBS	12	N/A	1	N/A	N/A	N/A
Number of observations in grid cell						
OBS_YEAR_0 Earliest year of observation in grid cell	12	N/A	1995	N/A	N/A	N/A
OBS_YEAR_1						
Latest year of observation in grid cell	12	N/A	1995	N/A	N/A	N/A
OBS_TIME_0						
Earliest time of observation in grid cell	R8	day	1.00	367.00	N/A	N/A
OBS_TIME_1		_				
Latest time of observation in grid cell	R8	day	1.00	367.00	N/A	N/A
BIRTH_YEAR_0	10	N1/A	4005	N1/A	N1/A	N1/A
Earliest birth year in grid cell	I2	N/A	1995	N/A	N/A	N/A
BIRTH_YEAR_1	10	NI/A	1005	NI/A	NI/A	NI/A
Latest birth year in grid cell	l2	N/A	1995	N/A	N/A	N/A
BIRTH_TIME_0	R8	day	1.00	367.00	N/A	N/A
Earliest birth time in grid cell	No	uay	1.00	307.00	IN/A	IN/A
BIRTH_TIME_1	R8	day	1.00	367.00	N/A	N/A
Latest birth time in grid cell	110	uay	1.00	307.00	IN/A	IN/A
X_MAP_CENTER	R4	km	N/A	N/A	N/A	N/A
Map location of cell center - x	11.4	KIII	14// (14/73	14// (14/71
Y_MAP_CENTER	R4	km	N/A	N/A	N/A	N/A
Map location of cell center - y			1471	1477	1 47 1	14,71
CELL_TEMP	R4	deg C	-100.0	100.0	N/A	N/A
Temperature at cell center						
I_AREA	R4	sq km	0	N/A	N/A	N/A
Sum of initial cell areas in grid cell						
C_AREA	R4	sq km	0	N/A	N/A	N/A
Sum of current cell areas in grid cell		-				
FBSR_1 Fractional area in 1st backscatter range	12	N/A	0.0	1000	N/A	N/A
FBSR 2						
Fractional area in 2nd backscatter range	12	N/A	0.0	1000	N/A	N/A
FBSR 3						
Fractional area in 3rd backscatter range	12	N/A	0.0	1000	N/A	N/A
FBSR 4						
Fractional area in 4th backscatter range	12	N/A	0.0	1000	N/A	N/A
FBSR 5						
Fractional area in 5th backscatter range	l2	N/A	0.0	1000	N/A	N/A
FBSR_6	_					
Fractional area in 6th backscatter range	I2	N/A	0.0	1000	N/A	N/A
FBSR_7						
Fractional area in 7th backscatter range	l2	N/A	0.0	1000	N/A	N/A
FBSR_8	10	N1/A		4000	N1/A	21/2
Fractional area in 8th backscatter range	I2	N/A	0.0	1000	N/A	N/A
FBSR_9	10	N1/A	0.0	1000	NI/A	N1/A
Fractional area in 9th backscatter range	I2	N/A	0.0	1000	N/A	N/A
FBSR_10	10	NI/A	0.0	1000	NI/A	NI/A
Fractional area in 10th backscatter range	l2	N/A	0.0	1000	N/A	N/A
FBSR_11	12	N/A	0.0	1000	N/A	N/A
Fractional area in 11th backscatter range	12	IN/A	0.0	1000	IN/A	IN/A

Name/Description	Туре	Units	Min	Max	Miss	Values
FBSR_12	12	N/A	0.0	1000	N/A	N/A
Fractional area in 12th backscatterrange	12	IN/A	0.0	1000	IN/A	IN/A
FBSR_13	12	N/A	0.0	1000	N/A	N/A
Fractional area in 13th backscatter range	12	IN//T	0.0	1000	IN/A	IN/A
FBSR_14	12	N/A	0.0	1000	N/A	N/A
Fractional area in 14th backscatter range	12	14/71	0.0	1000	14// (14/71
FBSR_15	12	N/A	0.0	1000	N/A	N/A
Fractional area in 15th backscatter range	12	14/74	0.0	1000	14//	14/71
FBSR_16	12	N/A	0.0	1000	N/A	N/A
Fractional area in 16th backscatter range		14/74	0.0	1000	1 4/7 (13/73
FBSR_17	12	N/A	0.0	1000	N/A	N/A
Fractional area in 17th backscatter range		, .	0.0			
FBSR_18	12	N/A	0.0	1000	N/A	N/A
Fractional area in 18th backscatter range						
FBSR_19	12	N/A	0.0	1000	N/A	N/A
Fractional area in 19th backscatter range			0.0		,	
FBSR_20	12	N/A	0.0	1000	N/A	N/A
Fractional area in 20th backscatter range			0.0		,	
FBSR_21	12	N/A	0.0	1000	N/A	N/A
Fractional area in 21st backscatter range			0.0		,	
FBSR_22	12	N/A	0.0	1000	N/A	N/A
Fractional area in 22nd backscatter range			0.0		,	
FBSR_23	12	N/A	0.0	1000	N/A	N/A
Fractional area in 23rd backscatter range			0.0		,	
FBSR_24	12	N/A	0.0	1000	N/A	N/A
Fractional area in 24th backscatter range	12		0.0	1000	IN/A	14// \
FBSR_25	12	N/A	0.0	1000	N/A	N/A
Fractional area in 25th backscatter range				1000	14//1	

11.0 Gridded Area/Open Water Fraction Product (50km grid)

Description

This product contains the area and estimated open water fraction of all the grid cells covering the Arctic Ocean at time T_s .

Frequency/Size Estimate

The product generation is frequency is once per week. Each product file contains area/open water fraction data for the 4000 50km x 50km grid cells covering the Arctic Ocean. Each product file is approximately 0.5MB in size.

11.1 Gridded Area/Open Water Fraction Product: Metadata Record Contents

Name/Description	Туре	Units	Min	Max	Miss	Values
PID RGPS Product identifier	C24	N/A	N/A	N/A	N/A	N/A
PROD_DESCRIPTION Description of this product	C40	N/A	N/A	N/A	N/A	N/A
N_CELLS Number of cells in the product	14	N/A	N/A	N/A	N/A	N/A
CELL_SIZE Size of cells in the product	R4	km	N/A	N/A	N/A	N/A
CREATE_YEAR Product creation year	12	N/A	1995	N/A	N/A	N/A
CREATE_TIME Product creation time	R8	day	1.00	367.00	N/A	N/A
PROD_START_YEAR Product start year	12	N/A	1995	N/A	N/A	N/A
PROD_START_TIME Product start time	R8	day	1.00	367.00	N/A	N/A
PROD_END_YEAR Product end year	12	N/A	1995	N/A	N/A	N/A
PROD_END_TIME Product end time	R8	day	1.00	367.00	N/A	N/A
SW_VERSION Software version used to create this product	C12	N/A	N/A	N/A	N/A	N/A

11.2 Gridded Area/Open Water Fraction Product: Open Water Fraction Data

The area/open water fraction data contain multiple records. Each record contains the area/open water fraction estimates for a cell. The records are in row order. Each record has the following format.

Name/Description	Туре	Units	Min	Max	Miss	Values
N_OBS Number of observations in grid cell	12	N/A	1	N/A	N/A	N/A
OBS_YEAR_0 Earliest year of observation in grid cell	12	N/A	1995	N/A	N/A	N/A
OBS_YEAR_1 Latest year of observation in grid cell	12	N/A	1995	N/A	N/A	N/A
OBS_TIME_0 Earliest time of observation in grid cell	R8	day	1.00	367.00	N/A	N/A

Name/Description	Туре	Units	Min	Max	Miss	Values
OBS_TIME_1 Latest time of observation in grid cell	R8	day	1.00	367.00	N/A	N/A
BIRTH_YEAR_0 Earliest birth year in grid cell	12	N/A	1995	N/A	N/A	N/A
BIRTH_YEAR_1 Latest birth year in grid cell	12	N/A	1995	N/A	N/A	N/A
BIRTH_TIME_0 Earliest birth time in grid cell	R8	day	1.00	367.00	N/A	N/A
BIRTH_TIME_1 Latest birth time in grid cell	R8	day	1.00	367.00	N/A	N/A
X_MAP_CENTER Map location of cell center - x	R4	km	N/A	N/A	N/A	N/A
Y_MAP_CENTER Map location of cell center - y	R4	km	N/A	N/A	N/A	N/A
CELL_TEMP Temperature at cell center	R4	deg C	-100.0	100.0	N/A	N/A
I_AREA Initial cell area	R4	sq km	0	N/A	N/A	N/A
C_AREA Current cell area	R4	sq km	0	N/A	N/A	N/A
OW_FRAC Open water fraction	12	N/A	0	N/A	N/A	N/A

12.0 Gridded Eulerian Ice Motion Product (Interpolated to 50km grid)

Description

This product contains the interpolated ice motion on a 50km grid covering the Arctic Ocean at time T_s.

Frequency/Size Estimate

The product generation frequency is once per week. Each product file contains the weekly ice motion at the 4000 grid points covering the Arctic Ocean. The product file is approximately 0.2MB in size

12.1 Gridded Eulerian Ice Motion Product: Metadata Record Contents

Name/Description	Туре	Units	Min	Max	Miss	Values
PID RGPS Product identifier	C24	N/A	N/A	N/A	N/A	N/A
PROD_DESCRIPTION Description of this product	C40	N/A	N/A	N/A	N/A	N/A
N_GRID Number of grid points in the product	12	N/A	1	N/A	N/A	N/A
GRID_SP Grid spacing	R4	km	0.0	1000.0	N/A	N/A
CREATE_YEAR Product creation year	12	N/A	1995	N/A	N/A	N/A
CREATE_TIME Product creation time	R8	day	1.00	367.00	N/A	N/A
OBS_YEAR Observation year	12	N/A	1995	N/A	N/A	N/A
OBS_TIME Observation time	R8	day	1.00	367.00	N/A	N/A
DELTA_TIME Delta time between observations	R8	day	0.00	366.000	N/A	N/A
SW_VERSION Software version used to create this product	C12	N/A	N/A	N/A	N/A	N/A

12.2 Gridded Eulerian Ice Motion Product: Ice Motion Data

The ice motion data contain multiple records. Each record contains interpolated ice motion at each grid point. The records are in row order. Each record has the following format.

Name/Description	Туре	Units	Min	Max	Miss	Values
GRID_X Grid point location - x	R8	km	N/A	N/A	N/A	N/A
GRID_Y Grid point location - y	R8	km	N/A	N/A	N/A	N/A
DISP_X Displacement in x	R8	km	N/A	N/A	N/A	N/A
DISP_Y Displacement in y	R8	km	N/A	N/A	N/A	N/A

13.0 Eulerian Ice Motion Product

Description

This product contains the ice motion on a 5km grid computed from a pair of images.

Frequency/Size Estimate

This product is requested by the user. Each product file is approximately 0.02MB and 0.5MB in size for ERS-1 and RADARSAT, respectively.

13.1 Eulerian Ice Motion Product: Metadata Record

Name/Description	Туре	Units	Min	Max	Miss	Values
PID	C24	N/A	N/A	N/A	N/A	N/A
RGPS Product identifier	024	IN/A	IN/A	IN/A	111/7	IN/A
PROD_DESCRIPTION	C40	N/A	N/A	N/A	N/A	N/A
Description of this product	040	IN/A	IN/A	IN/A	111/7	IN/A
APID	C20	N/A	N/A	N/A	N/A	N/A
Image A Product identifier	020	IN/A	IN/A	IN/A	111/7	IN/A
BPID	C20	N/A	N/A	N/A	N/A	N/A
Image B Product identifier	020	IN/A	IN/A	IN/A	111/7	IN/A
ACENTYEAR	12	N/A	1995	N/A	N/A	N/A
Scene center year of Image A	12	IN/A	1995	IN/A	IN/A	IN/A
ACENTTIME	Во	day	1.00	267.00	N/A	N/A
Scene center time of Image A	R8	day	1.00	367.00	IN/A	IN/A
BCENTYEAR	12	N/A	1005	NI/A	N/A	N/A
Scene center year of Image B	12	IN/A	1995	N/A	IN/A	IN/A
BCENTTIME	Do	alas i	4.00	207.00	NI/A	NI/A
Scene center time of Image B	R8	day	1.00	367.00	N/A	N/A
A_TL_X	Do		N1/A	N1/A	N1/A	N1/A
Upper left x, Image A	R8	km	N/A	N/A	N/A	N/A
A_TL_Y	Do.		N1/A	N1/A	N1/A	N1/A
Upper left y, Image A	R8	km	N/A	N/A	N/A	N/A
A_TR_X	Do.		N1/A	N1/A	N1/A	N1/A
Upper right x, Image A	R8	km	N/A	N/A	N/A	N/A
A_TR_Y	Do.		N1/A	N1/A	N1/A	N1/A
Upper right y, Image A	R8	km	N/A	N/A	N/A	N/A
A BR X	D.C.				A1/A	21/2
Lower right x, Image A	R8	km	N/A	N/A	N/A	N/A
A BR Y						
Lower right y, Image A	R8	km	N/A	N/A	N/A	N/A
A BL X						
Lower left x, Image A	R8	km	N/A	N/A	N/A	N/A
A BL Y						
Lower left y, Image A	R8	km	N/A	N/A	N/A	N/A
B TL X						
Upper left x, Image B	R8	km	N/A	N/A	N/A	N/A
B TL Y						
Upper left y, Image B	R8	km	N/A	N/A	N/A	N/A
B_TR_X						
	R8	km	N/A	N/A	N/A	N/A
	R8	km	N/A	N/A	N/A	N/A
Upper right x, Image B B_TR_Y Upper right y, Image B			N/A	N/A	N/A	N/A

Eulerian Ice Motion Product 33

Name/Description	Туре	Units	Min	Max	Miss	Values
B_BR_X	R8	km	N/A	N/A	N/A	N/A
Lower right x, Image B	Κo	KIII	IN/A	IN/A	IN/A	IN/A
B_BR_Y	R8	lem	N/A	N/A	N/A	N/A
Lower right y, Image B	Ro	km	IN/A	IN/A	IN/A	IN/A
B_BL_X	R8	lem	N/A	N/A	N/A	N/A
Lower left x, Image B	Κo	km	IN/A	IN/A	IN/A	IN/A
B_BL_Y	R8	km	N/A	N/A	N/A	N/A
Lower left y, Image B	Κo	KIII	IN/A	IN/A	IN/A	IN/A
PIXEL_SP	R4	m	0.0	100.0	N/A	N/A
Pixel spacing	K4	m	0.0	100.0	IN/A	IN/A
CREATE_YEAR	12	N/A	1005	NI/A	N/A	N/A
Product creation year	12	IN/A	1995	N/A	IN/A	IN/A
CREATE_TIME	R8	day	1.00	367.00	N/A	N/A
Product creation time	Ro	day	1.00	367.00	IN/A	IN/A
GRID_W_OBS	14	N/A	N/A	N/A	N/A	N/A
Grid elements with observations	14	IN/A	IN/A	IN/A	IN/A	IN/A
NPIX_A	14	N/A	N/A	N/A	N/A	N/A
Number of pixels across image A	14	IN/A	IN/A	IN/A	IN/A	IN/A
NREC_A	14	N/A	N/A	N/A	N/A	N/A
Number of records down image A	14	IN/A	IN/A	IN/A	IN/A	IN/A
NPIX_B	14	N/A	N/A	N/A	N/A	N/A
Number of pixels across image B	14	IN/A	IN/A	IN/A	IN/A	IN/A
NREC_B	14	N/A	N/A	N/A	N/A	N/A
Number of records down image B	14	IN/A	IN/A	IN/A	IN/A	IN/A
AVG_DISP_X	R4	km	N/A	N/A	N/A	N/A
Average displacement in x	114	KIII	IN/A	IN/A	111/7	IN/A
AVG_DISP_Y	R4	km	N/A	N/A	N/A	N/A
Average displacement in y	114	KIII	IN/A	IN/A	111/7	IN/A
D_TIME	R8	day	0.00	366.000	N/A	N/A
Time separation between images	NO	uay	0.00	300.000	111/71	IN/A
GRIDSPACE	R4	km	N/A	N/A	N/A	N/A
Grid element spacing	N 4	MIII	IN/A	IN/A	IN/A	IN/A
SW_VERSION	C12	N/A	N/A	N/A	N/A	N/A
Software version used to create this product	012	IN/A	IN/A	111/74	111/71	IN/A
ALGO_TYPE	C8	N/A	N/A	N/A	N/A	N/A
Algorithm type	Co	IN/A	IN/A	IN/A	IN/A	IN/A

13.2 Eulerian Ice Motion: Ice motion Vector data

Name/Description	Туре	Units	Min	Max	Miss	Values
A_GRID_X Grid point location - x, Image A	R8	km	N/A	N/A	N/A	N/A
A_GRID_Y Grid point location - y, Image A	R8	km	N/A	N/A	N/A	N/A
B_GRID_X Grid point location - x, Image B	R8	km	N/A	N/A	N/A	N/A
B_GRID_Y Grid point location - y, Image B	R8	km	N/A	N/A	N/A	N/A
DISP_X Displacement in x	R4	km	N/A	N/A	N/A	N/A

Eulerian Ice Motion Product 34

Name/Description	Type	Units	Min	Max	Miss	Values
DISP_Y Displacement in y	R4	km	N/A	N/A	N/A	N/A
ROT_ANGLE Rotation angle	R4	N/A	-180.0	180.0	N/A	N/A
Q_FLAG Quality Flag	BYTE	N/A	1	6	N/A	N/A

Eulerian Ice Motion Product 35

14.0 Melt Onset/Freeze Up Product

Description

This product contains the melt onset or freeze up dates of all the grid cells covering the Arctic Ocean.

Frequency/Size Estimate

The product generation frequency is twice per ice season, one during the spring-summer transition and the other during the summer-fall transition. Each product file is approximately 20MB in size.

14.1 Melt Onset/Freeze Up Product: Metadata Record Contents

Name/Description	Туре	Units	Min	Max	Miss	Values
PID RGPS Product identifier	C24	N/A	N/A	N/A	N/A	N/A
PROD_DESCRIPTION Description of this product	C40	N/A	N/A	N/A	N/A	N/A
N_CELLS Number of cells in the product	14	N/A	1	N/A	N/A	N/A
CREATE_YEAR Product creation year	12	N/A	1995	N/A	N/A	N/A
CREATE_TIME Product creation time	R8	day	1.00	367.00	N/A	N/A
SEASON_START_YEAR Season start year	12	N/A	1995	N/A	N/A	N/A
SEASON_START_TIME Season start time	R8	day	1.00	367.00	N/A	N/A
SEASON_END_YEAR Season end year	12	N/A	1995	N/A	N/A	N/A
SEASON_END_TIME Season end time	R8	day	1.00	367.00	N/A	N/A
SW_VERSION Software version used to create this product	C12	N/A	N/A	N/A	N/A	N/A

14.2 Melt Onset/Freeze Up Product: Transition Data

The transition dates data contain multiple records. Each record contains the date of seasonal transition for a cell. The records are in row order. Each record has the following format.

Name/Description	Туре	Units	Min	Max	Miss	Values
CELL_ID cell identifier	14	N/A	0	N/A	N/A	N/A
TRANSITION_YEAR Year of observation	I2	N/A	1995	N/A	N/A	N/A
TRANSITION_TIME Time of observation	R8	day	1.00	367.00	N/A	N/A
X_MAP Map location of cell center - x	R8	km	N/A	N/A	N/A	N/A
Y_MAP Map location of cell center - y	R8	km	N/A	N/A	N/A	N/A

15.0 Gridded Wind/Temperature/Pressure Fields (50km grid)

Description

This product contains the wind, temperature and pressure at all the grid points (50km grid spacing) covering the Arctic Ocean at time T_s .

Frequency/Size Estimate

The product generation is frequency is once per day. Each product file contains wind, temperature and pressure fields over the Arctic Ocean. Each product file is approximately 0.2MB in size.

15.1 Gridded Wind/Temperature/Pressure Fields: Metadata Record Contents

Name/Description	Туре	Units	Min	Max	Miss	Values
PID RGPS Product identifier	C24	N/A	N/A	N/A	N/A	N/A
PROD_DESCRIPTION Description of this product	C40	N/A	N/A	N/A	N/A	N/A
N_GRID Number of grid pts	14	N/A	1	N/A	N/A	N/A
CREATE_YEAR Product creation year	12	N/A	1995	N/A	N/A	N/A
CREATE_TIME Product creation time	R8	day	1.00	367.00	N/A	N/A
MET_YEAR Year of the analysis	12	N/A	1995	N/A	N/A	N/A
MET_TIME Time of the analysis	R8	day	1.00	367.00	N/A	N/A
SW_VERSION Software version used to create this product	C12	N/A	N/A	N/A	N/A	N/A

15.2 Gridded Wind/Temperature/Pressure Fields: Data

The meteorological data contain multiple records. Each record contains wind vector, pressure and temperature at each grid point. The records are in row order. Each record has the following format.

Name/Description	Туре	Units	Min	Max	Miss	Values
X_MAP Map location of grid point - x	R8	km	N/A	N/A	N/A	N/A
Y_MAP Map location of grid point - y	R8	km	N/A	N/A	N/A	N/A
X_WIND x component of wind velocity	R4	m/s	N/A	N/A	N/A	N/A
Y_WIND y component of wind velocity	R4	m/s	N/A	N/A	N/A	N/A
PRESSURE Pressure	R4	mb	N/A	N/A	N/A	N/A
TEMP Temperature	R4	deg C	N/A	N/A	N/A	N/A

16.0 Ice Deformation Product

Description

This product contains the area changes and ice motion spatial derivatives of all the grid cells within an initial datatake between the times T_{s-7} and T_{s} .

Frequency/Size Estimate

The product generation frequency is once per week. Each product file contains information of the area changes and ice motion spatial derivatives of the grid cells within the product. Since the product contains all observations in the product time period, the size of each product will vary and will contain approximately 11MB per observation of all 100,000 cells.

16.1 Ice Deformation Product: Metadata Record Contents

Name/Description	Туре	Units	Min	Max	Miss	Values
PID RGPS Product identifier	C24	N/A	N/A	N/A	N/A	N/A
PROD_DESCRIPTION Description of this product	C40	N/A	N/A	N/A	N/A	N/A
N_CELLS Number of cells in the product	14	N/A	N/A	N/A	N/A	N/A
CREATE_YEAR Product creation year	l2	N/A	1995	N/A	N/A	N/A
CREATE_TIME Product creation time	R8	day	1.00	367.00	N/A	N/A
SEASON_START_YEAR Season start year	I2	N/A	1995	N/A	N/A	N/A
SEASON_START_TIME Season start time	R8	day	1.00	367.00	N/A	N/A
SEASON_END_YEAR Season end year	l2	N/A	1995	N/A	N/A	N/A
SEASON_END_TIME Season end time	R8	day	1.00	367.00	N/A	N/A
SW_VERSION Software version used to create this product	C12	N/A	N/A	N/A	N/A	N/A
N_W_LAT North West Latitude of initial datatake	R4	Deg	-90.00	90.00	N/A	N/A
N_W_LONG North West Longitude of initial datatake	R4	Deg	-180.00	180.00	N/A	N/A
N_E_LAT North East Latitude of initial datatake	R4	Deg	-90.00	90.00	N/A	N/A
N_E_LONG North East Longitude of initial datatake	R4	Deg	-180.00	180.00	N/A	N/A
S_W_LAT South West Latitude of initial datatake	R4	Deg	-90.00	90.00	N/A	N/A
S_W_LONG South West Longitude of initial datatake	R4	Deg	-180.00	180.00	N/A	N/A
S_E_LAT South East Latitude of initial datatake	R4	Deg	-90.00	90.00	N/A	N/A
S_E_LONG South East Longitude of initial datatake	R4	Deg	-180.00	180.00	N/A	N/A

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16.2 Ice Deformation Product: Area Change and Ice Motion Derivatives Data

The area change and ice motion spatial derivatives data contain multiple records. Each cell contains multiple observations of area change and ice motion spatial derivatives. The records are in row order. Each record has the following format.

Name/Description	Туре	Units	Min	Max	Miss	Values
CELL_ID	14	NI/A	0	N/A	N/A	N/A
Cell identifier	14	N/A	0	IN/A	IN/A	IN/A
BIRTH_YEAR	10	NI/A	4005	NI/A	NI/A	NI/A
Birth Year of cell	12	N/A	1995	N/A	N/A	N/A
BIRTH_TIME	D0	-l	4.00	007.00	NI/A	N1/A
Birth time of cell	R8	day	1.00	367.00	N/A	N/A
N_OBS	12	N/A	1	N/A	N/A	N/A
Number of observations of cell	12	IN/A	1	IN/A	IN/A	IN/A
OBS_YEAR_1	12	NI/A	1995	N/A	N/A	N/A
Year of observation 1	12	N/A	1995	IN/A	IN/A	IN/A
OBS_TIME_1	R8	dov	1.00	367.00	N/A	N/A
Time of observation 1	Κo	day	1.00	367.00	IN/A	IN/A
X_MAP_1	R8	leno	N/A	N/A	N/A	N/A
X map location of observation 1	Κo	km	IN/A	IN/A	IN/A	IN/A
Y_MAP_1	R8	km	N/A	N/A	N/A	N/A
Y map location of observation 1	Κo	km	IN/A	IN/A	IN/A	IN/A
X_DISP_1						
X displacement of between current observa-	R8	km	N/A	N/A	N/A	N/A
tion and previous observation						
Y_DISP_1						
Y displacement betweem current observa-	R8	km	N/A	N/A	N/A	N/A
tion and previous observation						
C_AREA_1	R4	sq km	N/A	N/A	N/A	N/A
Cell area of observation 1		• • • • • • • • • • • • • • • • • • • •				
D_AREA_1						
Cell area difference between current obser-	R4	sq km	N/A	N/A	N/A	N/A
vation and previous observation						
DTP_1	D.4	da.	NI/A	NI/A	NI/A	NI/A
Time difference between current observa- tion and previous observation	R4	day	N/A	N/A	N/A	N/A
DUDX_1						
du/dx ice motion partial of observation 1	R4	N/A	N/A	N/A	N/A	N/A
DUDY_1						
du/dy ice motion partial of observation 1	R4	N/A	N/A	N/A	N/A	N/A
DVDX_1						
dv/dx ice motion partial of first observation	R4	N/A	N/A	N/A	N/A	N/A
DVDY_1						
dv/dy ice motion partial of observation 1	R4	N/A	N/A	N/A	N/A	N/A
aviay ice motion partial of observation i						
·	•	•	•		•	
	:			:		
OBS_YEAR_N		-	-		-	
Year observation of (N_OBS)	12	N/A	1995	N/A	N/A	N/A
OBS_TIME_N		_				
Time observation of (N_OBS)	R8	day	1.00	367.00	N/A	N/A
				1		

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Name/Description	Туре	Units	Min	Max	Miss	Values
X_MAP_N X map location of observation (N_OBS)	R8	km	N/A	N/A	N/A	N/A
Y_MAP_N Y map location of observation (N_OBS)	R8	km	N/A	N/A	N/A	N/A
X_DISP_N X displacement between (N_OBS) observa- tion and previous observation	R8	km	N/A	N/A	N/A	N/A
Y_DISP_N Y displacement between (N_OBS) observation and previous observation	R8	km	N/A	N/A	N/A	N/A
C_AREA_N Cell area of (N_OBS) observation	R4	sq km	N/A	N/A	N/A	N/A
D_AREA_N Cell area difference between (N_OBS) observation and previous observation	R4	sq km	N/A	N/A	N/A	N/A
DTP_N Time difference between (N_OBS) observation and previous observation	R4	day	N/A	N/A	N/A	N/A
DUDX_N du/dx ice motion partial of (N_OBS) observation	R4	N/A	N/A	N/A	N/A	N/A
DUDY_N du/dy ice motion partial of (N_OBS) observation	R4	N/A	N/A	N/A	N/A	N/A
DVDX_N dv/dx ice motion partial of (N_OBS) observation	R4	N/A	N/A	N/A	N/A	N/A
DVDY_N dv/dy ice motion partial of (N_OBS) observation	R4	N/A	N/A	N/A	N/A	N/A

Tice Deformation Product 40